

5

The structures according to the invention have been explained in the form of an N-channel FET but can also equally well be realized with corresponding opposite doping in a P-channel version.

The edge of a transistor that is constructed in such a way can be designed like that of currently customary power MOSFETs.

The trench walls **11a**, **11b**, **14**, **16** can be doped by ion implantation, for example, at an angle to the trench wall. It is intended to be high enough that avalanche breakdown still does not occur in the layers **14** in the event of full depletion.

I claim:

1. A field effect-controllable semiconductor component, comprising:

a semiconductor body having a surface;

a drain zone of a first conductivity type in said semiconductor body;

a gate electrode composed of polycrystalline silicon in said semiconductor body, said gate electrode being insulated from said drain zone;

a source region of a second conductivity type introduced in said drain zone;

said drain zone having a trench structure formed therein reaching from said surface of said semiconductor body into said drain zone; and

a field plate in said trench structure and an oxide layer surrounding said field plate, said oxide layer having a thickness increasing gradually and continuously from said surface in a direction towards said drain zone.

6

2. The semiconductor component according to claim **1**, which further comprises a further layer surrounding said oxide layer, said further layer being doped more heavily with the first conductivity type than said drain zone.

3. The semiconductor component according to claim **2**, which further comprises at least one additional layer of the second conductivity type introduced into said oxide layer surrounding said field plate.

4. The semiconductor component according to claim **1**, wherein said trench structure is one of a multiplicity of trench structures arranged in grid form in said semiconductor body.

5. The semiconductor component according to claim **1**, wherein said trench structure is one of a multiplicity of trench structures arranged in strip form in said semiconductor body.

6. The semiconductor component according to claim **1**, wherein said field plate is electrically connected to a source terminal of said source region.

7. The semiconductor component according to claim **1**, wherein said field plate is electrically connected to said gate electrode.

8. The semiconductor component according to claim **7**, wherein said field plate is a vertical field plate serving as a gate.

9. The semiconductor component according to claim **1**, wherein said field plate is composed of polysilicon.

10. The semiconductor component according to claim **1**, wherein said field plate is composed of polysilicon.

* * * * *